

# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE

APRIL 24, 1943



Ration-Free

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A SCIENCE SERVICE PUBLICATION

## Do You Know?

Table scraps, garden waste, vegetable tops, and lawn clippings can be fed to the home flock of *chickens*.

*Manganese sulfate* applied to the soil in southern tung tree groves supplies an element needed by the trees.

Chemical *fertilizers* of certain kinds destroy animal life in the soil as well as supply nutrients to the crop.

The largest reported American *elm* tree in the United States is 30 feet in circumference; it is at Wethersfield, Conn.

American dark twist *tobacco* has long been chewed by natives in New Guinea, Solomon Islands and New Britain, and is sometimes used there as money.

*Printing-press rolls* of synthetic rubber are reported to be superior to natural rubber rolls because they are less subject to swelling and distortion from inks, and cleaning mixtures.

New England commercial hook-and-line fishermen are reported to be using menhaden for *bait* instead of mackerel; menhaden is cheaper and not so much in demand for human food.

Fourteen hundred pounds of *cotton* yield 500 pounds of fiber for clothing and other uses, 140 pounds of table oil, 400 pounds of protein feed for cattle, 240 pounds of hulls for livestock roughage, and 80 pounds of linters for smokeless powder.

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A heavy Army *bomber* flew nearly 12,000 miles from the United States to India in less than 68 hours.

*Fats* and oils from domestic materials will exceed 11 billion pounds in 1943, it is expected; this is 10% more than the 1942 production.

*Gold* production in the United States, including Alaska, was 135,113 fine ounces in January, 1943, a decrease of 57% from that of January, 1942.

A bushel of white *potatoes*, weight 90 pounds, when dehydrated weighs eight pounds.

The Ordnance Department of the Army is using *women* in more than 30 different occupations, from ballisticians to welders.

*Glycerin* has been extensively used as a carrying agent for medicines because it has excellent solvent properties and does not ferment.

## SCIENCE NEWS LETTER

Vol. 43 APRIL 24, 1943 No. 17

The Weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N. St., N. W., Washington, D. C. North 2255. Edited by WATSON DAVIS.

Subscriptions—\$5.00 a year; two years, \$7.00; 15 cents a copy. Ten or more copies to same address, 5 cents a copy. Back numbers more than six months old, 25 cents.

In requesting change of address, please give your old address as well as the new one, at least two weeks before change is to become effective.

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Cable address: Scienserve, Washington.  
New York office: 310 Fifth Avenue, CHickering 4-4665.

Entered as second class matter at the post-office at Washington, D. C., under the Act of

March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark. U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature, Abridged Guide, and in the Engineering Index.

The Science Observer, established by the American Institute of the City of New York, is now included in the SCIENCE NEWS LETTER.

The New York Museum of Science and Industry has elected SCIENCE NEWS LETTER as its official publication to be received by its members.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 394 7th Ave., N. Y. C., PENnsylvania 6-5566; and 360 N. Michigan Ave., Chicago, STAtE 4439.

SCIENCE SERVICE is the Institution for the Popularization of Science organized 1921 as a non-profit corporation.

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## MEDICINE

# Salt Water for Shock

**Future first aid treatment of shock in severe burns may be just a drink with just the right amount of salt in it. Proved life saver for mice.**

► A DRINK of salt water, of just the right strength, may become the future first aid treatment for shock in extensive burns.\*

Experiments at the National Institute of Health by Dr. Sanford M. Rosenthal, principal pharmacologist of the U. S. Public Health Service, point that way, although so far no human trials of the method have been made.

Survival rate for the first two days among burned mice given about one-fourth of a teaspoon of the salt drink was about twice as high as among the animals not given this drink. When the animals were given two salt drinks, one and four hours after the burn, only about 13 out of 100 died the first day and 17 out of 100 on the second, as compared with about 93 out of 100 dying among untreated controls.

Dr. Rosenthal compared the salt drink treatment for shock from burns with other standard methods of treating shock. No benefit was observed, he reports, from epinephrine (adrenalin), posterior pituitary gland extract, adrenal cortical extract, or a synthetic adrenal cortical hormone preparation.

Human blood serum showed little effect when injected into the veins of the mice. Mouse blood serum was more effective but not as good as the salt drink.

Whether a salt drink can replace blood serum or blood plasma as life-saving treatment for shock in human victims of burns cannot be told until more experiments have been made. The salt drink treatment is based on a different principle from that of replacing lost fluids as by plasma or blood transfusions, Dr. Rosenthal explained.

In mice, he finds, the acute mortality, that is death, occurring within a day or two after an extensive burn, is closely related to a disturbance of the balance of sodium and potassium in the body as well as to the escape of fluids from the blood stream. The upset in sodium-potassium balance seems the most important, he reports, and may be the cause of the concentration of the blood and other effects attributed to the loss of fluids in the burned areas. Doses of potassium speeded death in the burned mice, and

when this was given with sodium chloride, it antagonized the effects of the salt drink.

The strength of the salt drink, he explains, has to be such as not to upset the fluid balance of the body, and should have about the same osmotic pressure as that of the blood.

Since it is the sodium of the salt that is effective, other sodium salts, such as sodium bicarbonate, might be given if the salt drink proved too nauseating. Salt tablets of the right dose with a glass of water might prove the most practical method for first aid use, if the new treatment develops into one useful for human burn victims.

Further studies on methods of saving those who succumb to burns after the first two days will be made, Dr. Rosenthal says. The studies have so far been limited to effects of treatment for shock, rather than for the burn itself, since in man from 60% to 80% of the deaths

from extensive burns occur within the first few days as the result of shock.

*Science News Letter, April 24, 1943*

## CHEMISTRY

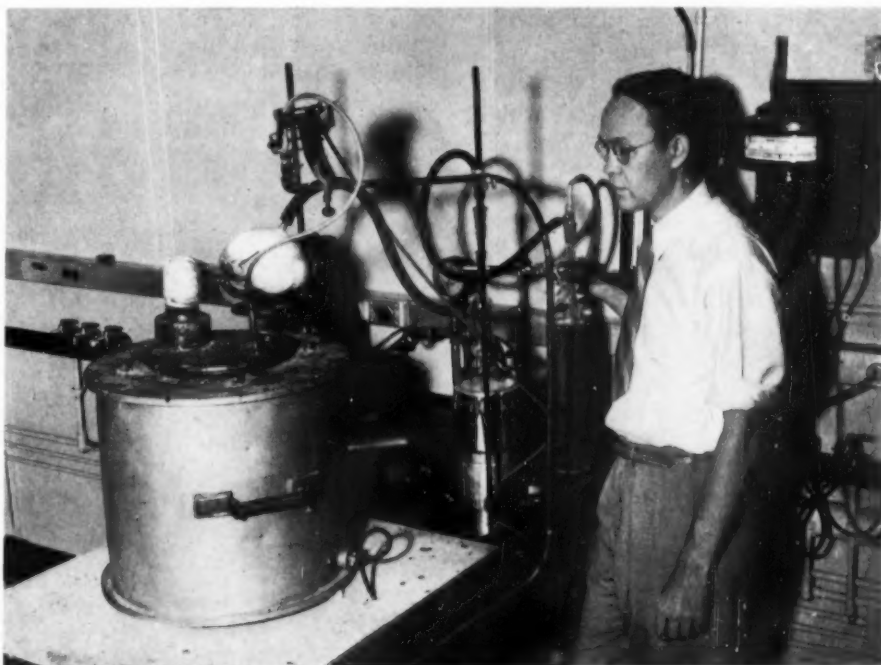
## Synthetic Rubber Paracon Now Being Produced

► THE DEVELOPMENT of a new kind of synthetic rubber which will help meet essential war needs was announced by the Bell Telephone Laboratories. This new material, christened "Paracon," looks and feels like ordinary rubber, has a high resistance to damage by oil or gasoline, and is superior to natural rubber in resistance to heat, light and oxidation. It is inferior to natural rubber in resistance to steam, alkalis and acids.

In the raw state, Paracon is unusually adapted to moulding into intricate shapes. It is useful not only as a replacement for rubber, but in particular as a material for special application where its combination of unique properties is required. The aircraft industry is an example.

Paracon can be derived from agricultural products and coal products, or from coal and petroleum sources. It can therefore add to the present supply of rubber substitutes without interfering with the production of those already under way.

Synthesis of Paracon was accomplished by Dr. C. S. Fuller and Dr. B. S. Biggs



**FOR PARACON**—Here is Dr. C. S. Fuller with some of the equipment in Bell Telephone Laboratories with which he and Dr. B. S. Biggs developed "Paracon," newest synthetic rubber.



of Bell Telephone Laboratories and their associates. Several months ago, after Paracon had been demonstrated practicable at the laboratories, information was made available to the Baruch Rubber Committee and the War Production

Board. Details as to the process involved were turned over to several chemical manufacturing companies to enable quantity production, and the Resinous Products and Chemical Co. is now producing Paracon.

*Science News Letter, April 24, 1943*

#### PSYCHOLOGY

## What Bombardier Needs

**To operate Norden Bombsight, you must have good eyes and mental as well as manual agility. Must be calm under fire.**

► IF IT IS your ambition to be the one to shout "Bombs away!" over Tokyo when America moves on Japan, you can start practicing now some of the skills you will need to operate the Norden bombsight.

Now that the bombsight is no longer kept boxed away in strict military secrecy, it can be told just what sort of abilities a man needs to work this precious all-American gadget.

First of all you must have good eyesight. And this means more than just ability to see a capital E at a distance of 20 feet. It means being able to pick out a camouflaged war plant from a background of trees or city pavements or other roof tops. You must be able to spot, at a great distance, an objective you have seen before only on a map. And you must spot it quickly. You have only something like 25 seconds—that is less than half a minute to do everything. If you waste many seconds in spotting your target, you won't have many seconds left in which to make the adjustments on your instruments.

If your plane is flying at a great altitude, you may have a little longer in which to search for your target. But if you are flying low, the ground will go whizzing along below you at a great rate.

Your eyes must be very good at detecting small movements. In operating the Norden bombsight, it is necessary to set the sight so that the cross-hairs are placed accurately over the target. If you should get it exactly right at the first setting, you won't need to do anything more; the instrument will go on and do the rest. But most people are not that good. If the setting is imperfect the target will start to drift just perceptibly off the exact intersection of

the cross-hairs and it will then be up to you to detect this drift instantly and make the necessary correction.

If you are going to be one of Uncle Sam's bombardiers, you must be able to make the adjustments on a precision instrument with great accuracy and great speed.

You must be able to use calculating devices such as a slide rule. You must be able to make lightning calculations in your head. You must be able to hunt up values in tables of figures quickly. You must be able to do a great many operations always in the proper order and without forgetting a single item. And you must be able to do them all at top speed.

And you must be able to remain quite calm and unflustered while you go through all this complicated procedure even though a Messerschmidt has a machine gun pointed straight at you.

*Science News Letter, April 24, 1943*

#### PHYSICS

## Million-Volt Industrial X-ray Machine Installed

► A POWERFUL million-volt X-ray machine has just been installed at the University of Rochester, made possible by the collaboration of eight Rochester industries with heavy war contracts. Dr. Alan Valentine, president of the University, has announced.

"A number of Rochester firms with millions of dollars' worth of war contracts each wished to build one of these X-ray laboratories, but the cost and effort would have been too great," he states. "By combining forces they have not only cut the pro-rata cost to a fraction of the total, but they also have acquired a metallurgical laboratory whose research on

alloys and new materials will be valuable long after the present immediate need has been met."

Each of the eight contributing industries will use the giant X-ray machine to inspect and test war materials, thus greatly speeding up their work on vital government contracts. The University's scientific staff will assist in testing, and will use the equipment for research on alloys, plastics and similar products, for medical therapy and experiments involving the use of the deeply penetrating rays.

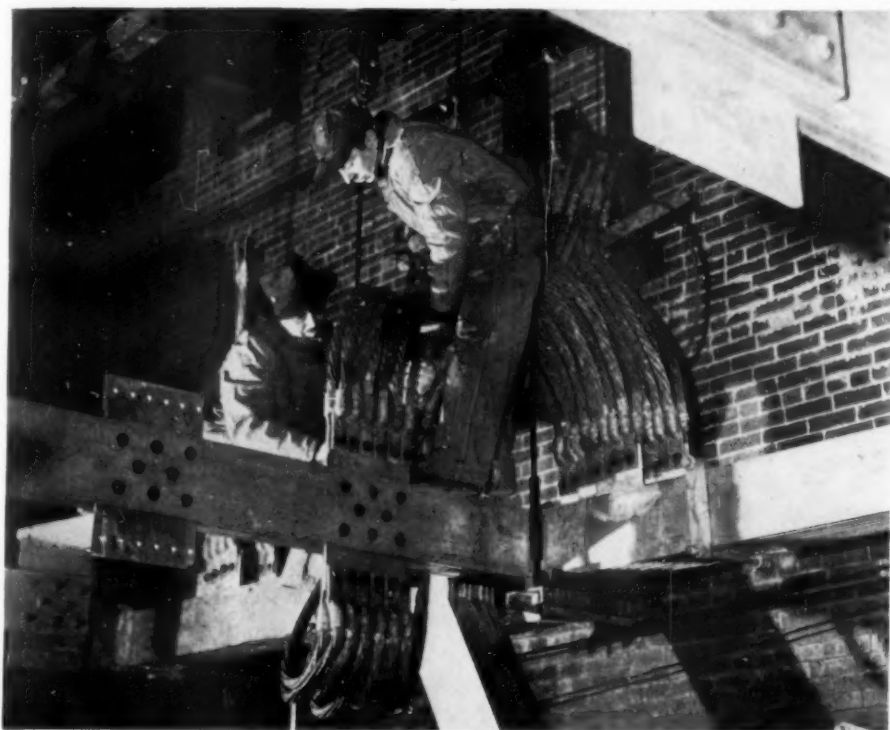
There are about 30 of these powerful X-ray machines in use in various places, but all are in industrial plants. This is the first of them that has been put into a university.

The Rochester industries collaborating in the purchase and installation of this huge X-ray machine are the Eastman Kodak Company, Bausch & Lomb Optical Company, Symington-Gould Corporation, Pfaunder Company, Delco Appliance Division and Rochester Products Division of General Motors Corporation, General Electric Corporation, and General Electric X-Ray Corporation. The machine was designed by Dr. E. E. Charlton of the General Electric X-Ray Corporation.

*Science News Letter, April 24, 1943*



**SILVER**—Loaned by the Government, this solid silver bus bar is now doing war service at the Dow Magnesium Corporation's new Michigan plant, relieving the demand for copper needed for cartridge casings and other types of ordnance equipment.



**STARTER CABLES**—They are leading to the solid silver bus bar now at work in the production of magnesium for the war.

## ENGINEERING

## Silver Bus Bars

**Solid silver used to carry current for magnesium production in new plant "somewhere in Michigan." Almost completely replaces copper.**

► **SOMEWHERE** in Michigan electric current flowing through huge bus bars of solid silver brought another great magnesium plant into production as the Dow Magnesium Corporation poured its first metal in the fifth Dow-process plant built by the Austin Company for the Defense Plant Corporation to meet the wartime demand for this lightest of all structural metals.

Washington officials representing the Defense Plant Corporation and the War Production Board looked on as the metal, derived from salt brine, flowed from the first of hundreds of electrolytic furnaces soon to be in service at this plant, "somewhere in Michigan." In full production, it will equal the largest of its kind.

The silver almost completely replaces copper in the power distribution lines required for large scale production of magnesium. It was loaned to the De-

fense Plant Corporation by the government for this use, to release copper for shells, ordnance equipment and other war needs, in which no substitute will do. The silver is even more efficient than copper as a conductor of electricity but would not normally be used because of its excessive cost.

Designed by Austin engineers with a view to saving critical materials, the plant makes extensive use of wood and plastics where steel and other metals would normally have been used. It includes a rigid frame concrete structure with a double hinged arch of exceptionally wide span, which will house all the alloying operations.

The start of magnesium production anticipates the early beginning of operations at Dow Magnesium's companion plant across the state. There magnesium chloride for use here will be produced from subterranean salt brine

by the method inaugurated by Dow at Midland, Mich., over 26 years ago. This cell feed will be transported across the state in covered gondola cars to the eastern plant, which was placed in this new location because of the availability of power required for the processing.

The starting of this plant marks a climax in the Defense Plant Corporation's magnesium production program and opens a concluding chapter in developments which have kept a portion of the Austin organization continuously at work on magnesium plants for a period of more than four years. At times, during the past two years, Austin has had as many as 600 engineers and 15,000 construction workers on the design and erection of magnesium facilities from the Great Lakes to the Gulf.

*Science News Letter, April 24, 1943*

## MEDICINE

## Dr. Charles B. Huggins Given First Mayer Award

► **DISCOVERY** that surgical or chemical castration can banish pain, prolong life and restore health, at least temporarily, in men suffering from cancer of the prostate has won for Dr. Charles B. Huggins, University of Chicago professor of surgery, the first Charles L. Mayer Award of \$2,000.

The award was announced by the National Science Fund of the National Academy of Sciences which administers it. It was offered for the most outstanding contribution made during 1942 to present day knowledge of factors affecting the growth of animal cells with particular reference to human cancer, and as a new type of prize for the advancement of fundamental scientific research administered under a new type of philanthropic foundation.

Dr. Huggins' discovery is not, he has stated, a cure for cancer, but a helpful method of treatment. Either removal of the male sex glands by surgical operation or the chemical castration method (doses of female sex hormone) reduces the amount of male sex hormone activity. This in turn seriously interferes with the enzyme systems vital to the living processes of the prostate cancer cells.

The advisory committee assisting in the selection of the winner consisted of Nobelists George H. Whipple; Dr. R. R. Williams, discoverer of vitamin B<sub>12</sub>; Dr. Alan Gregg, director for the Medical Sciences of the Rockefeller Foundation; and Elihu Root, Jr. A similar award will be given in 1944.

*Science News Letter, April 24, 1943*

## PHYSIOLOGY

# New Blood Clotting Theory

Natural tryptase of blood is believed to be "missing link" in the activation of prothrombin to thrombin. May aid war use of plasma substitutes.

► A NEW THEORY of how blood clots is announced by Dr. John H. Ferguson, of the University of Michigan (*Science*, April 9).

Although many loose ends are still to be brought in line, Dr. Ferguson states, he is presenting his theory now as a working hypothesis because it may aid in the war production of plasma substitutes and substances to check bleeding.

The essential feature of blood-clotting, it has long been agreed, is the conversion of a protein part of the plasma, called fibrinogen, to fibrin. This is accomplished by thrombin which in turn is produced from an inactive substance in the plasma called prothrombin. One of the big unsolved mysteries has been what makes prothrombin turn into thrombin to clot blood when it is shed.

The natural tryptase of the blood is, according to Dr. Ferguson's theory, the "missing link" in the activation of prothrombin to thrombin. Normally this ferment or enzyme is present in an inactive state. But "damage," that is, colloidal disturbance such as may occur when blood is shed and comes in contact with foreign surfaces outside the blood vessel walls, introduces new conditions which favor activation of the

ferment. It then activates the conversion of prothrombin into thrombin.

Many practical applications of the new theory are suggested by Dr. Ferguson. It may, for example, help solve the problem of transfusion reactions and anaphylactic shock. It may lead to satisfactory treatment for hemophiliacs, sufferers from the hereditary bleeders' disease. The blood ferment readily clots hemophilic blood in the test tube. Danger of coagulating all the blood in the veins at present "offers an insuperable obstacle" to the use of the ferment by injection into the veins for checking hemorrhage, but "ways of overcoming this serious obstacle may be found," Dr. Ferguson states.

The ferment, serum-tryptase, accounts for the instability and spoilage of plasma and plasma protein preparations. These difficulties are being overcome very satisfactorily at present in the war production of plasma substitutes and substances to check hemorrhage, but the methods have been worked out on a trial and error basis and Dr. Ferguson suggests that the new theory of blood-clotting may furnish a more rational basis for solving such problems.

*Science News Letter, April 24, 1943*

## MEDICINE

# Egg and Avidin Fails

Combination, widely hailed as possible treatment for cancer, did not help two patients on whom it was tried for 30 weeks.

► RAW EGG whites and avidin, widely hailed as a possible treatment for cancer, failed to help two patients on whom it was tried for 30 weeks, Dr. C. P. Rhoads and Dr. Jules C. Abels, of Memorial Hospital, New York, report (*Journal, American Medical Association*, April 17).

The basis for the treatment is the idea that because several types of cancer contain abnormally large amounts of a vitamin chemical, biotin, and may require this chemical for their life and

growth, feeding raw egg whites and the avidin from them would starve the cancer to death.

Avidin is an anti-biotin chemical. It apparently combines with biotin so that animals fed large amounts of avidin or raw egg white cannot use the biotin in their diets and get sick. The same kind of sickness from lack of biotin has been reported in humans who were given large amounts of raw egg whites and avidin.

The New York cancer patients were

given from 16 to 40 times the amount of avidin necessary to bind the limited amounts of biotin in their diets. They did not, however, show signs of biotin deficiency.

One of the patients had an advanced cancer of the breast which had spread to the liver and the armpit. The cancer spread further while she was on the avidin-raw egg white treatment and she died four weeks after the experiment was completed.

The other patient had the cancer-like disease, chronic lymphatic leukemia. He still had pronounced signs of the disease after the avidin treatment and was then given X-ray treatment which brought some improvement in both the blood and lymph gland condition.

In spite of the failure of the avidin and raw egg white treatment in these two patients, the New York doctors state that this does not mean necessarily that it will prove to be valueless in the treatment of patients with cancer.

*Science News Letter, April 24, 1943*

## CHEMISTRY

# Wastes from TNT Plants Hard to Get Out of Water

► TNT IN quantities undreamed-of during World War I is being produced in our chemical factories, to fill missiles all the way from the deadly little 20-millimeter aircraft cannon shells to the enormous block-buster bombs. But this devastation for the enemy is not being prepared without some inconvenience to ourselves. At the meeting of the American Chemical Society in Detroit, problems connected with the disposal of wastes from TNT production were detailed by two U. S. Public Health Service scientists, Dr. Stuart Schott and Dr. C. C. Ruchhoft.

TNT wastes flowing into rivers are especially difficult to dispose of, they pointed out, because they are actually dissolved in the water, not suspended as fine solid particles. Hence, filtering is of little effect. The dissolved chemicals are of such nature that bacteria do not care to feed on them, so this biological method of disposal is out. Treatment with activated carbon would be prohibitively costly.

Most promising treatment thus far tried seems to be chlorination, which has resulted in a considerable reduction. Further work along this line is being undertaken. Disposal through sewage plants also offers some possibilities.

*Science News Letter, April 24, 1943*



## CHRONOLOGY

# Easter at Its Latest

Only once since beginning of 19th century has Easter come so late and it will not come so late again until after the year 2000.

► EASTER this year will be the latest it is possible for the celebration to occur—April 25. Only once since the beginning of the nineteenth century—in 1886—has Easter occurred so late, and it will not come this late again until some time after the year 2000.

Easter comes "the first Sunday after the first full moon after the twenty-first of March," which basis of calculation accounts for its changeable date. Because of its traditional relationship to the Jewish feast of the Passover, a fixed date for the observance of Easter has never been universally accepted.

The feast of the Passover celebrates the liberation of the Hebrews from Egyptian bondage. It was on the first day of this festival that Jesus and his disciples ate the Last Supper. The next day, Friday, was the day of the Crucifixion and the following Sunday the day on which Our Lord arose from the dead—the first Easter. According to modern reckoning this occurred on April 9, 30 A.D.

There is no mention of the observance of the Easter festival in the New Testament, but the Passover continued to be celebrated. It had now been given a new significance for the converts from Judaism.

According to the decision of the Council of Nicaea, in 325 A.D., Easter can be celebrated on any Sunday from March 22 until April 25. The Council actually used the vernal equinox as the basis for calculations instead of specifying March 21. The vernal equinox, which is the time when the sun crosses from the south to the north side of the equator, does not always fall on March 21. It may occur the day before or the day after. Whenever spring comes to the northern hemisphere on March 20 and the full moon occurs the following day, a Saturday, Easter will be on March 22. This has happened a number of times since 1800.

This year the full moon and the beginning of spring coincide, so Easter could not occur until the first Sunday after April 20. This happens to be Sunday, April 25, and Easter is thirty-five days delayed in reaching us.

Inaccuracies crept into the calendar throughout the ages so that toward the end of the sixteenth century spring was beginning on March 11 instead of March 21. The Gregorian correction of the calendar in 1582, designed to straighten out this inaccuracy, was accepted by the Western but not by the Eastern branches of the church. Since that time Easter for the Eastern and Western believers has been calculated on a different basis.

This year, however, the two do coincide, and all Christendom is celebrating Easter on April 25.

The inconvenience of an oscillating Easter has long been felt, particularly by commercial concerns and educational institutions. In several countries there has been an attempt under way for some time to make Easter a less variable feast day. But Easter is a Christian celebration observed throughout the world, and until a change in the method of calculating the date is universally accepted, this movement will be unsuccessful.

*Science News Letter, April 24, 1943*

## PHYSICS

## New Fluorescent Material Makes Ultraviolet Seen

► WARM YELLOW radiance is given off by a new fluorescent material which possesses the power of absorbing invisible ultraviolet rays and transforming them into visible light. It is expected to have wide application in the future lighting of homes, stores, factories and theatres. The yellow glow is more agreeable to many persons than the harder, bluish-white light produced by most present fluorescent lamps.

"The new material not only produces a light of a radically new color, but it also retains, unlike previous fluorescents, the power to emit light even if the materials contain impurities in the form of iron or nickel," it was announced by the American Optical Company, in whose laboratory the new discovery was made by Dr. W. A. Weyl.

The substance glows without the addition to its composition of an activating



**FLUORESCENT**—This new fluorescent material illuminates the face of the discoverer, Dr. W. A. Weyl, of the American Optical Company and Pennsylvania State College, with a warm yellow light when it is exposed to ultraviolet light from the lamp at the right.

agent like manganese, a necessary element in present fluorescents.

Zinc oxide and vanadium pentoxide, combined by a controlled low-temperature heating process, are used in the new fluorescent substance. The material may be made more economically and easily in comparison with those previously discovered. It is still a laboratory development and not yet available to the public.

Dr. Weyl is a member of the research staff of the American Optical Company and also is professor of glass technology at Pennsylvania State College.

*Science News Letter, April 24, 1943*

Watermelons will be less plentiful this year, as only approximately one-half as much acreage is being planted as the average for the past ten years; more essential war crops are being grown instead.

## ● RADIO

Saturday, May 1, 1:30 p.m., EWT

"Adventures in Science" with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Bart J. Bok, of Harvard College Observatory, will give the last of a series of three talks on Science From Shipboard.

## PSYCHOLOGY

**Worker Needs More Leeway To Look After His Affairs**

► **MORE LEEWAY** is needed for men and women to look after the necessities of life without being branded absentees. Miss Elizabeth Christman, Field Representative of the Women's Bureau of the U. S. Department of Labor, points out that although the percentage of absenteeism has increased since the war, working hours have been lengthened and simple living has become increasingly complex.

"Not only are the work days and work weeks longer; we must stand in lines more often for groceries, gasoline, ration books, or to catch a bus," Miss Christman told the recent Institute of Women's Professional Relations.

"It is as unwise to think of legislating against absenteeism as to legislate against a common cold," Miss Christman believes.

Absences for which workers may seem entirely at fault prove on further analysis to be rooted in plant conditions — long working hours, inadequate supervision, inefficient management — and community conditions.

The general public has a definite share in this whole remedial program. She feels that inadequate and bad housing should become a community responsibility. Store hours should be staggered, transportation eased, and banks and ration boards adjust their hours to harmonize with the workers' needs.

*Science News Letter, April 24, 1943*

## PALAEONTOLOGY

**10,000-Year-Old Bones Found in California**

► **NEW EVIDENCE** that man lived in California some 10,000 or more years ago and feasted upon animals long since extinct has been unearthed through excavations in central San Joaquin Valley reported (*Science*, April 9) by Dr. Gordon W. Hewes, now in Washington, D. C.

Conditions at the site near Tranquility, Fresno County, Calif., strongly suggest to Dr. Hewes that the carcasses of now extinct mammals were brought there by hunters of the group who built fires, buried its dead and made the numerous stone and bone artifacts (tools) which have been found in the deposit. The bones of the extinct American camel, horse and bison occur along with bones

of species still living in the San Joaquin Valley and these are broken in such a way that they show they had been used for food.

Four human skeletons were found in graves at the site. The human bones, as well as those of animals, were very heavily mineralized so that they are now twice the weight of ordinary dry bone and of greatly increased hardness.

Scientific interest in the site arises particularly from the human burials which seem to belong to the same level of the earth as the tools and extinct animal skeletons.

There is little likelihood of further work on the site until after the war, but Dr. Hewes points out that if the animals and human beings did live at the same early time, anthropologists will be able to establish the way the early Indian population of North America really looked, which it has not yet been possible to do.

No age in years was assigned to the site by Dr. Hewes but the animal remains found indicate that it was probably inhabited at about the time of transition from the Pleistocene geological period to what is known as the Recent, a time about 10,000 to 15,000 years ago.

*Science News Letter, April 24, 1943*

## ENTOMOLOGY

**Pvethrum Ointment Is Weapon Against Lice**

► **PYRETHRUM**, effective ingredient of sprays used to eradicate mosquitoes and other insects, has now been put into an ointment for delousing purposes, it is announced.

The ointment was developed by Dr. Walter K. Angevine, who tested its delousing properties on inmates of Washington, D. C., penal institutions, in collaboration with Dr. A. L. Omohundro, technical director of McKesson and Robbins, Inc. manufacturing and research laboratories.

The ointment is said to be highly effective in eradicating both the lice and their eggs without causing any skin trouble to the user or staining clothing permanently. It need only stay on the body for 15 minutes and can then be easily washed off with soap and water. It is said to be safe even for children.

Since body lice transmit European typhus fever, the new ointment is believed to be of importance as a possible aid in the fight against this disease as well as in fighting less harmful infestation.

*Science News Letter, April 24, 1943*

**IN SCIENCE**

## PUBLIC HEALTH

**Meningitis Epidemic Continues Unabated**

► **THE MENINGITIS** epidemic continues unabated but the nation's health is otherwise good, according to reports of communicable diseases from state health officers to the U. S. Public Health Service.

The U. S. Census Bureau has announced that provisional figures show the death rate for 1942, 10.3 per 1,000, to be the lowest on record.

Latest figure on meningitis, for the week ending April 3, showed a total of 595 cases, compared with 572 for the previous week. The total number of cases so far this year is 5,826, which is slightly over half the total of 10,551 for the entire year in 1929, the highest year on record so far.

Total accumulated deaths from all causes for the first 13 weeks of this year in 89 major cities were 130,970, which is somewhat higher than the 119,905 figures for the same period in 1942.

*Science News Letter, April 24, 1943*

## MEDICINE

**New Evidence Found For Cancer-Hormones Relation**

► **NEW EVIDENCE** for a relation between cancer and hormones, the powerful chemicals produced by certain glands of the body, appears in a report by Dr. George W. Woolley, Dr. E. Fekete and Dr. C. C. Little, of the Roscoe B. Jackson Memorial Laboratory (*Science*, March 26).

These scientists found that cancer of the outer part of the adrenal glands, which is relatively rare in both man and laboratory animals, can be induced in a large percentage of mice of one strain by removal of the sex glands.

This discovery, added to other observations showing sex hormones have an influence in the formation of certain types of cancer, suggests, the scientists point out, that lack of proper balance between the various hormones may be one factor leading to certain forms of cancer.

*Science News Letter, April 24, 1943*



# NE FIELDS

## CHEMISTRY

## Rare Chemical Element Found in Dust from Flues

➤ RHENIUM, one of the latest-discovered and rarest of the chemical elements, can now be produced in America, it was announced at the meeting of the American Chemical Society in Detroit by Dr. A. D. Melaven and Dr. J. A. Bacon of the University of Tennessee.

Rhenium is present in a concentration of only a few parts per million in molybdenum ore mined for use in the steel industry in one of our western states. But in the dust that can be captured in the flues of the ore-roasting plants it has been found to be concentrated up to ten or fifteen thousand parts per million, and in soluble form at that. By simple treatment with water, followed by precipitation, a pure potassium salt of rhenium is obtainable.

Rhenium has hitherto been a monopoly of Germany, where it was discovered in 1925 and named for the River Rhine. At present it is so rare that it is used only for experimental purposes, but it is regarded as having possibilities as a chemical catalyst, as lamp filaments and for wear-resisting points in some kinds of electrical contacts.

*Science News Letter, April 24, 1943*

## PUBLIC HEALTH

## Squirrel That Bit Men Found to Have Rabies

➤ SQUIRRELS probably do not seem much of a health menace to you, unless you live in the far West and know that ground squirrels in that region are a reservoir of plague. A report from the New York State Health Department shows another, though perhaps rare, health menace from squirrels, that of rabies. According to this report, two cement workers on a construction camp put down their shovels one day at noon and started to eat lunch.

"The first worker reached inside a large tool chest, fumbling for his lunchbox. To his anguish, some animal suddenly seized his fingers by its teeth

and claws and held him fast. The second worker sprang to his aid and in attempting to extricate the hand of his fellow worker was bitten himself. The animal in the toolbox proved to be a common gray squirrel and was killed with a curb tool.

"The two men reported for first-aid treatment to the construction company infirmary where a nurse asked them to obtain the body of the squirrel which was submitted by the company physician to a local laboratory for examination for evidence of rabies. The results demonstrated that the animal was rabid and the two workmen were given injections of antirabic vaccine. Had the nurse been less alert, the body of the squirrel might have been discarded without examination and the men might have developed rabies."

There seem to be two health lessons from this report:

1. The importance of thinking of rabies in any case of animal bite. Though dogs are by far the most frequent source of this disease, cats, cattle, horses, sheep, swine and other animals, including squirrels, can have and give it.

2. The fact that squirrels, which belong to the rat family, are apparently not the safest companions or neighbors.

*Science News Letter, April 24, 1943*

## GENERAL SCIENCE

## New Honor Award Is Specifically for Women

➤ A NEW DISTINCTION specifically for women, the \$2500 Achievement Award of the American Association of University Women, was conferred April 13 on Dr. Florence Seibert, associate professor at Phipps Institute in Philadelphia. Dr. Seibert is internationally famous for her research on the chemistry of tuberculosis.

Dr. Seibert, whose work has already brought her a number of coveted prizes, was chosen as the first recipient of the A. A. U. W. award "not for the recognition already received, but for the work done, for the work in hand."

This award was made possible through a fund raised by the Northwest Central Region of the Association. Nominations were asked from more than 200 leading women in college administration. It was agreed by the committee that the first recipient should be a woman who by her capacity and achievements should not only merit such recognition, but set the standard for qualifications.

*Science News Letter, April 24, 1943*

## PUBLIC HEALTH

## Protein Allergy Attacks Workers in Castor Plants

➤ A NEW DANGER to the health of workers in an important war industry was disclosed before the meeting of the American Chemical Society in Detroit by two U. S. Department of Agriculture research men, Dr. Joseph R. Spies and Dr. E. J. Coulson.

This industry is the extraction of castor oil, now needed in huge quantities for filling the recoil cylinders of heavy guns, supplying an essential ingredient for nylon, mixing with paints and other important uses.

But workers handling the pomace or pulp left after the oil has been extracted sometimes develop asthma and other allergic symptoms.

Castor bean pomace has long been known to contain ricin, a protein poison that rivals cobra venom in deadliness. But pomace extracts from which the last trace of ricin has been removed were still capable of causing allergic reactions. This newly discovered allergy-producing protein has not yet been given a name, but only a set of initials; CB-1A. Something closely resembling it in chemical and physiological properties has also been isolated from cottonseed.

*Science News Letter, April 24, 1943*

## CHEMISTRY

## Thermoplastics Will Serve Future Electronic World

➤ "THERMOPLASTICS, like their thermosetting cousins, perform many necessary functions in electrical equipment, and the technical apparatus of the electronic world of tomorrow will be served both by the material with which we are familiar, and by newer and better ones," declared H. K. Nason, of the Monsanto Chemical Company, at a meeting in Pittsfield, Mass., of the American Institute of Electrical Engineers.

These plastics are now serving many useful purposes in electronics, he continued, but much work is being done in industrial and other laboratories to develop a thermoplastic that will meet the full needs in the electronics field. This requires material which can be used in situations where high temperatures are encountered, and plastics that will not "creep," better known as cold-flow. The progress being made will not be reported upon until after the war.

*Science News Letter, April 24, 1943*

## ZOOLOGY

# Rabbits For Meat

**You can raise your own ration-free meat at little expense provided you have backyard space such as that needed for chickens.**

By **MARTHA G. MORROW**

See Front Cover

► THE EASTER BUNNY won't get by with just laying eggs this year. He may be caught and served in a delicious stew for dinner. This spring, unrationed rabbit meat will be served for the first time on many tables, and you should begin to raise a few rabbits to keep the wolf from the door.

Some people consider white rabbit meat as great a delicacy as frog's legs. Certainly it deserves to be more popularly used than hitherto. It closely resembles chicken in flavor and, like it, is equally delicious whether fried or fricasseed.

Just because rabbit meat isn't sold at the local butcher's doesn't mean that rabbits can't be raised in your locality. They thrive wherever that United States ration book has to be produced when purchasing meat.

You don't have to live on a farm in order to raise rabbits. Any backyard where chickens are permitted will do. All the equipment you need is a little feed,

table scraps, and several packing boxes which you can easily remodel.

Incidentally, there are some Americans right now who are raising rabbits in real earnest. American prisoners of war in Japanese hands, the Red Cross has learned, are permitted to supply themselves with meat in this way. Breeding stock was obtained for them by American civilians who for some reason were not interned immediately after the Nipponese rush of conquest.

If you are considering raising rabbits for eating, you would probably choose a New Zealand, Chinchilla, or one of the other better-known breeds. The lovely albino rabbits are the most popular, and consequently are often hard to buy.

You might begin your venture with a doe mated at the dealer's rabbitry. If you have plenty of space, three or four does and a buck will furnish you with all the rabbit meat your family will use.

Rabbits cost from \$4 to \$6 each, which might seem high until you stop to think that your family of one rabbit will have increased to 16 or more within six months. Rabbits should always be bought from a reliable breeder.

Plenty of fresh water must be kept in the hutch. Be careful that the pan isn't too small—they consume an amazing amount of water.

## Wide Choice of Feed

You have a pretty wide choice of what to feed your rabbits. They should be fed whole grains such as oats, wheat, barley and rye, but the kind you select would depend largely on what you have on hand, or the cost in your locality.

Dry bread and clean table waste, except meat and greasy foods, may be used to vary the food and keep costs to a minimum. Potato peels, lawn clippings, pea vines, and even small branches from fruit trees may be given them. Tender weeds from your Victory garden would be most welcome. Rabbits that are unaccustomed to greens should be given only a small handful at first, but the quantity may be increased as they become used to them. Carrots, turn-

ips and sweet potatoes may be fed them during the summer or stored for use next winter when green feeds are scarce.

A quantity of hay should be placed where the rabbits can get it whenever they wish. Salt should be sprinkled on the food every week or so, or a small block of salt should be nailed up in the hutch where the rabbits may get at it conveniently. Rabbits, like cows, don't receive enough salt from the feed we humans provide for them to keep healthy.

## Stick to Schedule

How often you feed your rabbits each day is largely a matter of personal preference, but once having decided on a schedule, you should stick to it. A doe and her litter should receive all they will eat; but the other rabbits are inclined to overstuff. Two handfuls of oats per day is a good average quantity to feed. You might experiment with how much grain, or grain and household scraps, they will eat within a half hour, and this will be about the right amount.

It is customary to mate the doe as soon as the litter is weaned. In this manner it is possible to produce four litters a year. A litter of seven or eight is considered the best size. When there are more, the weaker ones should be destroyed.

A box with straw to be used in making a nest should be placed in the hutch 27 days after mating. The doe will line the nest with fur from her own body to make a cozy place for her young. Like most pets, they are born naked and blind, but begin to grow hair after two weeks. It's best to leave them with their mother until they are eight weeks old, and within another month they will be ready for frying.

When you start to lift a rabbit, you will be surprised to find that they sometimes weigh as much as 16 or 18 pounds. Never lift them by their ears or legs. To lift them without injury, you should grasp the fold of skin over the shoulders with your right hand, keeping the back of the animal toward your body. Place your left hand under the rump to support the rabbit's weight.

In mild climates little protection is required, other than a good roof. The sides of the hutches may be wholly or in part of wire netting. The standard hutch is four feet long, two and a half



**CORRECT**—This is the right way to pick up your rabbit. Don't carry her by the ears.

feet wide and two feet high.

The hutch can be constructed of scrap lumber, used chicken wire, and old crates. If it is to be left in the open, the roof should be covered with tarpaper which overhangs the wire below. For convenience, a wooden frame should be made for the wire door in front.

The hay can be kept in a Y-shaped manger made by nailing a few slats between one side and the roof. An empty tin for water should be nailed to another side. Very professional looking containers for the food can be made out of a five-gallon oil can if you have one handy. The hutch should be placed where it is protected from the wind, such as by the side of the house or garage.

### Keep Hutch Clean

The hutch should be kept clean. If the floor is solid, a scraper can be made by nailing a flat piece of tin to a wooden stick. With this hay, which has fallen on the floor, unused feed and droppings may be easily removed. Floors which will be less trouble to clean, can be made by placing inch slats a half inch apart. These spaces let the soiled hay and other refuse drop through. Trays should be placed underneath and cleaned periodically.

Inexpensive nest boxes for the young rabbits may be made of nail kegs with ventilation holes added, or from apple boxes.

Proper feeding and cleanliness are the most important precautions to take against disease. If you keep the hutch clean, and change the water and feed regularly, the chances are that you won't be bothered by sickness in your rabbitry.

One final word of warning. Don't treat your rabbits too much as pets. They are very interesting creatures, and children are likely to become particularly fond of the white ones. But if you are planning to use them to supplement your meat supply, you don't want to become too attached to them. It might be a good idea to buy a white rabbit for the kids to center their affections on, and a breeding stock of colored ones, for straight-out eating purposes.

Directions for preparing the meat are given in a free booklet distributed by the U. S. Rabbit Experiment Station at Fontana, Calif. This booklet also answers other questions which may arise concerning rabbit raising.

*Science News Letter, April 24, 1943*

*Fish*, it is claimed, has better flavor if killed and bled immediately after being caught.



**AT HOME**—These rabbits are in a very fine set of hutches; the beginning rabbit raiser can start out more modestly with an old packing box.

MEDICINE

## Yellow Fever Shots Safe

More than 600,000 doses of new type vaccine are released with no unfavorable reactions reported. Must pass four rigid tests.

➤ MORE THAN 600,000 doses of the new, aqueous type yellow fever vaccine, which the Army has adopted for protection of troops going into yellow fever regions, have now been released without jaundice or any other unfavorable reactions having been reported, the U. S. Public Health Service announced.

This type of vaccine, which the Public Health Service has been making at its Rocky Mountain Laboratory since 1941, is a distilled water extract of 10 to 11-day-old chick embryos which have been infected with a suitable strain of yellow fever virus, Dr. M. V. Hargrett, Dr. Anthony Donovan and H. W. Burruss explain in Public Health Reports.

Previous widely used yellow fever vaccine was made from an extract of the infected chick embryos in non-immune human serum.

Each lot of vaccine must pass four rigid control tests before being released for human use, the Public Health Service scientists state.

There must be no sign of contaminating germs. There must be a minimum of 66,000 minimum lethal mouse doses of virus per milliliter of vaccine. None of a series of three guinea pigs inoculated with the virus may show illness or more than a very slight rise in temperature during two weeks following injection. Finally, a test monkey must show lack of neutralizing bodies for yellow fever virus in his blood before vaccination and presence of such neutralizing bodies after vaccination. The lot of vaccine is discarded if it fails to pass any of these tests or if the test monkey develops paralysis or dies after vaccination, regardless of the cause of his death.

*Science News Letter, April 24, 1943*

Some 50,000 foreign patents, many of which are of interest to chemical, mining, and engineering industries, are available to American manufacturers from the Alien Property Custodian, Washington, D. C.



## MEDICINE

# Tooth Decay Vaccine

Preparation made from living, dead and a combination of both living and dead lactobacilli is being tried to build resistance to caries.

► A VACCINE against tooth decay is being tested at the Army Medical Center in Washington, D. C. The vaccine is made from lactobacilli, the kind of germs believed responsible for decay, Capt. Ned Williams, formerly of Dayton, Ohio, explained at a press conference at the center's dental laboratories.

Both living and dead germs and a combination of the two are being tried in the hope of building up resistance to the germs. After guinea pig tests showed that the vaccine was not irritating, 14 enlisted men as well as Capt. Williams volunteered to serve as human guinea pigs for further tests of the vaccine. Results will not be known for some time.

Use of chrome cobalt alloy and a new material, methal-methacalat, as substitutes respectively for gold and for vulcanized rubber in making soldiers' false teeth, was announced by Major Robert M. Appleman, director of the central dental laboratory at the Army Dental School.

The new metal alloy does not tarnish in the mouth and is made to resist strain. It is used for the plates into which the false teeth are set. Some 30 to 40 a month are made at the Army Dental School. Since the Army dental standards have been revised to take in completely toothless men, the business of making plates and false teeth is booming. The dental school with a staff of 47 technicians made 2,150 plates last month, most of them with the methal-methacalat base instead of vulcanite.

Besides supplying full and partial sets of false teeth the Army supplies single teeth when necessary. All are supplied

to order and specifications from the dental officers in the field. A stock of 70,000 individual teeth of different colors, and shapes and sizes is kept at the center. All the metal alloy plates for the Army in the eastern half of the United States and the Atlantic bases are made there, those for the western half of the country and the Pacific bases being made at the dental center at Fort Sam Houston. The more frequently used plates, with methal-methacalat base, however, and the teeth for them are supplied from the center in Washington for only the three eastern service commands.

*Science News Letter, April 24, 1943*

## GENERAL SCIENCE

## Franklin Medals Awarded To Urey and Pierce

► THE COVETED Franklin Medals and Certificates of Honorary Membership to the Franklin Institute were presented on Medal day, April 21, to two American scientists.

Dr. Harold C. Urey, Nobelist and professor of chemistry at Columbia University, is being honored for his discovery and production of heavy hydrogen which has proved of immense importance in furthering research in chemistry, physics, and biology.

Dr. George Washington Pierce, the other recipient of the Franklin Medal, is best known for his development of "electrically squeezed" quartz crystals used to narrow the range of radio frequencies. The use of this principle in obtaining accurate oscillations has facilitated the construction of the most precise electric clocks.

The Elliott Cresson Medal of the Franklin Institute was awarded to Prof. Charles M. Allen of Worcester Polytechnic Institute. His contribution to the field of hydraulics is a more rapid method of measuring the flow of water by adding a known amount of salt to the water and noting the time required for it to pass electrodes inserted in the pipe lines downstream.

A native of Lima, Dr. Don Francisco Ballen, received one of the Howard A. Potts medals for restoring a valuable

natural resource of his country to productivity.

The other Potts medal went to Dr. Paul R. Heyl of the National Bureau of Standards for his theoretically important formula to determine the constant of gravitation.

The Frank P. Brown Medal for achievements in building and allied industries was awarded posthumously to Albert Kahn, Detroit architect.

A joint award of the Edward Longstreth Medals was made, one each to Robert Griffin De La Mater and William Schwemlein. Their design and successful application of a fluid brake has made practical the drilling of wells to great depths with increased safety to life and property.

Robert Howland Leach of Fairfield, Conn., received a John Price Wetherill Medal. Harry Miller Pflager, senior vice president of the General Steel Castings Company, was granted the George R. Henderson Medal. A certificate of Merit was awarded to Carl S. Hornberger.

The 1943 Louis Edward Levy Medal for the best paper published in the Journal of the Franklin Institute during 1942 was presented to Anders Henrik Bull of Forest Hills, N. Y., for his paper, "Soil Pressure Distribution along Flexible Foundations."

*Science News Letter, April 24, 1943*

## ENGINEERING

## Resistance Welding Used For Welding of Aluminum

► ENERGY storage resistance welding has been extensively developed as an improved tool for the welding of aluminum, H. L. Palmer of the General Electric Company told the American Institute of Electrical Engineers meeting in Pittsfield, Massachusetts.

Resistance welding and arc welding have replaced much of the former fabrication of metals by the use of rivets.

"Some operating figures indicate that a spot weld costs one-tenth as much as a rivet," the speaker stated. "This means a saving in labor, material and time—all important factors in the war of production."

In arc welding a filler called a welding rod or electrode is melted into the space between the two pieces of metal being fused and joined. Resistance welding has been described as a "heat and squeeze process." The parts to be welded are heated to a fusion temperature and mechanically pressed together.

New problems have developed in re-

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sistance welding because many new and special alloys have been brought into common use and because welding must be done by comparatively unskilled men and women.

"Conventional alternating current resistance welding control has been expanded to meet the exacting requirements of welding the many new alloys made available for war use," Mr. Pal-

mer said. "A current regulator has been developed that will maintain constant current. Special sequence controls are available to meet any cycle of power applications found necessary to weld and heat treat the material to be fabricated."

*Science News Letter, April 24, 1943*

*Sugar beets* produced about one-fourth of the sugar used in the United States before the war.

"Fabrication is intimately related to gluing operations and until the aircraft manufacturers solve their gluing problems they will always have fabrication problems," declared Mr. Peterson. Most glue manufacturers supply users of their products with general instructions on gluing temperatures, pressures, and assembly periods which the aircraft manufacturers are advised to follow. Supplementary instructions were given by the speaker.

Above-normal temperatures have been recommended to reduce the period required for pressing for cold-press glues.

*Science News Letter, April 24, 1943*

#### CHEMISTRY

## Gas Attacks Expected

If Hitler's bombers make raids on American cities, they can be counted on to drop poison gases in bombs or sprays, official declares.

► **HITLER'S BOMBERS**, if they make their expected raids on American cities, can be counted on to drop poison gases in bombs or sprays, Col. A. Gibson of the Chemical Warfare Service declared in Detroit.

Col. Gibson, who is chief of the inspection section, Office of Civilian Defense, took part in a special symposium on civilian preparedness at the meeting of the American Chemical Society.

Gas will be used in raids on civilian populations whenever Axis war planners think it will be advantageous to them to do so, the Colonel asserted, and he added that a gas attack on an industrial area is capable of doing us a good deal of mischief because of the necessity to stop work in all places affected until they have been thoroughly decontaminated.

He disagreed with the widely accepted doctrine that civilians can avoid danger during a gas attack by going to the second story or higher and closing all windows tightly. Shutting the windows will do no good, he pointed out, because the enemy can be counted on to drop high explosive bombs along with the gas, and these will shatter the windows.

Neither can the heavy poison gases be expected to settle to the ground at once, Col. Gibson added. In chemical warfare demonstrations over New York City, in which harmless white smoke was used, the fumes piled up as high as the tallest skyscrapers; and at least some concentration of poison gases could be expected to do the same kind of thing.

In Germany, where civilians also expect to be gassed, basement air raid shelters are given gas protection, so that the same refuge can be used in

either high-explosive or gas bombardment or (what is much more likely eventually to happen) in a mixture of both.

*Science News Letter, April 24, 1943*

## Panic Is Feared

► **PANIC IS FEARED** even more than poison gas by those charged with the defense of the civil population against possible chemical attacks, Prof. Chauncey D. Leake of the University of Texas stated. People do not know about war gases, and they are afraid of them; but "Tell the people the truth about war gases and they will probably respect them more and fear them less," he said.

Some fumes that arise in certain types of fires may be mistaken for poison gases spread by the enemy, Prof. Leake pointed out, and this can give rise to reports of chemical attacks that have not actually taken place.

*Science News Letter, April 24, 1943*

#### AERONAUTICS

## Mass Production of Wood Planes Means Good Glues

► **EFFORTS** to turn out wood aircraft in mass-production quantities and at the same time take full advantage of recent developments in glues, design and fabrication techniques, are problems facing the manufacturers of wood airplanes. These were discussed by Ivar C. Peterson at the National Aeronautical meeting of the Society of Automotive Engineers in New York. Mr. Peterson, an aeronautical engineer, is with the U. S. Civil Aeronautics Administration in Washington.

#### PHYSIOLOGY

## High Blood Pressure After 40 Not Abnormal

► **SLIGHT** and moderate degrees of high blood pressure, as represented by readings around 150 systolic and 90 diastolic, in persons 40 years old and older are not abnormal. Probably half the population over 40 has such blood pressure readings.

These opinions, based on careful studies of 14,849 persons over age 40 from all walks of life, are reported by Commander A. M. Master, U.S.N.R., and H. H. Marks, of the Naval Medical School at Bethesda, Md. and Capt. Simon Dack, M.C., A.U.S. (*Journal, American Medical Association*, April 17). Part of the work was done at Mount Sinai Hospital, New York, and the Metropolitan Life Insurance Company before the scientists entered the services.

This new view of what constitutes

## The History of Chemotherapy Behind the Sulfa Drugs

By IAGO GALDSTON, M.C.

Four hundred years of research, failure and success lie behind the miracle of the sulfa drugs. Dr. Galdston tells the story of the men to whom we owe the development of chemical compounds in the treatment of disease.

"This book is fascinating, an accurate history of value both to laymen and physicians."—THOMAS M. RIVERS, M.D., the Hospital of the Rockefeller Institute for Medical Research.

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normal blood pressure in middle and old age, however, does not conflict with the fact that persons with lower blood pressures have a better chance to live longer.

Limits of normal blood pressure at ages over 40 should be raised, the scientists state, adding that they are now working on the development of new standards.

*Science News Letter, April 24, 1943*

## CHEMISTRY

## Food Research Reported

Nutritional values of meat proteins for troops and lend-lease shipments are found to be preserved in processing.

► MEAT for our armed forces overseas and for lend-lease shipment to our fighting allies keeps its nutritional value under the processing methods used, a three-man research team in Swift and Company's laboratories learned by test feedings to white rats. They experimented with the proteins of beef and pork as processed in four different ways: dehydration, canning, roasting and frying. In all cases, the results indicated "that from a practical standpoint there was no significant decrease in the nutritive quality of the proteins."

This report was presented to the American Chemical Society in Detroit by Dr. C. E. Poling, Dr. H. W. Schultz and Dr. H. E. Robinson.

*Science News Letter, April 24, 1943*

### Processed Milk Valuable

► PROCESSING milk leaves its proteins unimpaired in nutritional value, Prof. Carrell H. Whitnah of Kansas Agricultural Experiment Station told the Society. The milk samples used in tests on that most accommodating of animals, the laboratory rat, were evaporated, canned and sterilized. Some of them were also irradiated to produce either 270, 540, or 800 units of vitamin D per quart. In all tests, the variously treated samples of milk were found to be "without loss of protein quality as measured by digestibility or biological value."

Other tests showed no difference in digestibility or biological value in samples of evaporated milk at various periods from two weeks to 14 months after preparation; in other samples protected against spoilage with various preservatives, and in still others selected at various stages in the cow's lactation period.

*Science News Letter, April 24, 1943*

### Sulfa Affects Nutrition

► UNFAVORABLE effects of some of the sulfa drugs on the nutrition of patients receiving them was reported by Dr. Gustav J. Martin of the Warner Institute, New York. At least part of these drawbacks to the use of the "miracle drugs" are due to action of the sulfa compounds in discouraging the growth of the bacteria in the digestive tract, which appear in some way to aid the formation of certain vitamins.

One vitamin in particular, the hemorrhage-stopping K, is dangerously diminished by sulfa treatment, so that the patient is apt to bleed troublesomely from minor wounds. This condition can be corrected by adding vitamin K to the diet. It appears also that vitamin C acts as an "encourager" to vitamin K, so that the addition of C to the sulfa-treated patient's diet is helpful as well.

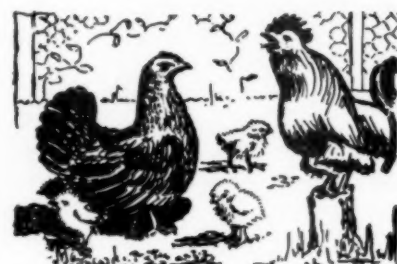
*Science News Letter, April 24, 1943*

### Test Loss of Thiamin

► EFFECTS of various steps in the canning process on the thiamin (vitamin B<sub>1</sub>) content of several vegetables were reported before the meeting by Dr. L. E. Clifcorn and Dr. D. G. Heberlin, of the Continental Can Company.

The preliminary process of blanching, that is, brief scalding of the vegetables with steam or hot water, seems to have variable effects. Even size has something to do with it; large green peas lost less thiamin upon blanching than did little ones. Asparagus showed no loss of the vitamin after blanching in hot water at 170 degrees Fahrenheit for 90 seconds. After blanching, whole green beans were found to have retained 94% of their original thiamin content, but their retention in cut beans was only 84%.

*Science News Letter, April 24, 1943*



### Mixed Symbols

► EASTER EGGS, gaily dyed and decorated, have come to be taken pretty much for granted as just something we do at Easter time, just as candles are an accepted part of the Christmas celebration. Most of us have forgotten the symbolism once taught us at Sunday School: that the egg, capable of producing a living chick when its seemingly lifeless shell was cracked, is a sign and token of "resurrection, and life everlasting," breaking the seal of the sepulcher.

Presence of a rooster, somewhere in the background, fitted well enough into the Easter picture: was it not one of these trumpet-voiced birds that chided Peter for his weak-kneed denial, and put into his spine the stiffening of repentance?

All this is wholly orthodox and proper Christian symbolism; but there are elements mixed in with it that represent survivals of remoter, more nearly forgotten pagan observances. Giving gifts of eggs at all is a pre-Christian custom: the old spring festivals were seed-time rites, and anything suggesting sprouting and fertility was proper to the occasion. Eggs and chickens, rabbits and their young, wreaths of flowers for the hair, all belong to these dimly remembered ceremonials of the childhood of our race.

It is, perhaps, not too violent a stretch of the imagination to suggest that even our most sophisticated Easter bonnets are such survivals. All the ladies have done is interpose a bit of straw or felt between their hair and the flowers, and substitute non-wilting artificial blooms for the perishable gleanings from spring-time meadows and woodlands. Confirmation of this theory of the paganness



of spring millinery can be obtained from at least the straiter-laced members of the clergy.

One very odd pagan note might be added. It comes from a part of Europe saturated in Christian history from very early times: Westphalia, where the intensely Catholic population still flock to Mass on Sundays and holy days, despite Hitler, Himmler and the Devil himself. There, in the traditional home of fine smoked pork products, the farmer folk cook the first of their winter's curing of hams for Easter dinner, and they call the day *Schinkensonntag*, which Englishes as "ham Sunday." What can this be but a far-off echo of the pre-Christian cult of ancient Germany, which saw in the prolific pig a symbol of fertility, abundance and good luck generally?

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#### PHYSIOLOGY

### Female Rats Age When Deprived of Tryptophane

► FEMALE RATS grow old before their time, failing to produce young even though recently mated, if they do not receive in their diet one of the essential fractions of protein known as tryptophane, one of the amino acids. Experiments indicating this are reported by three Johns Hopkins University physiologists, Dr. Anthony A. Albanese, Dr. Romaine McI. Randall and Dr. L. Emmett Holt, Jr. (*Science*, April 2).

Earlier researches by other scientists had already shown tryptophane lack to be an aging factor in male rats, causing loss of hair, defective teeth, degeneration of eyes and reproductive failure.

The three Johns Hopkins investigators first mated a group of mature, vigorous female rats. Then they placed part of them on a diet lacking in tryptophane, keeping the rest on a normal diet as controls. The control animals all bore normal litters, while the others, after developing symptoms similar to those seen in similarly treated male rats, all failed to have any young.

They point out a possible practical application of their research, in the livestock industry. Poor reproductive capacity has often been noted in animals on low-protein diets. The Johns Hopkins physiologists raise the question whether the lack of tryptophane is not the actual difficulty in such situations.

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Almost any organic matter can be used to produce industrial alcohol.

## • New Machines and Gadgets •

✿ GRINDING high-speed lathe cutting tools is expedited by use of a specially designed fixture holding 18 tools at a time. Precision grinding results and tool life efficiency is increased.

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✿ A RUBBER LUNG has been devised to insure successful and safe artificial respiration. Strapped to the back or stomach of a shock or drowning victim, the apparatus is said to activate muscles which gently draw air in and out of the lungs until natural breathing is restored.

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✿ A NEW PENETRATING liquid sloshed on cement floors is said to make them dustproof and crumbleproof. Applied to surfaces that are to be painted, it will also keep moisture from entering the material.

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✿ PLASTIC COVERSLEIPS are now used to cover specimens for examination under the microscope. They replace the extremely thin handcut glass formerly imported from Japan and Czechoslovakia. Besides having all the desirable properties of the fragile glass, the plastic is unbreakable and only about one-fourth as expensive.

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✿ TIME REQUIRED to check the maze of electrical installations in warplanes is cut from about 18 hours to 15 minutes by a recent invention. It checks hundreds of wires for proper wiring and

shorts, indicating which ones are bad and where. Operating principle of the tester is based on the fact that the main switch box is the heart of a plane's circuit.

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✿ RIVET SORTING machines save much time formerly consumed by hand sorting. In a big aircraft factory many pounds of rivets are dropped each day which are gathered up in the sweepings and salvaged. The sorting machine is a battery of four revolving cylinders with different size perforations which sorts them by sizes. They are then separated by head types and finally by their lengths.

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✿ HEALTH BOMB is a new metal dispenser which holds one pound of insecticide spray under compression. The spray is released by pressure on a trigger. A single 6-inch dispenser can fumigate 150,000 cubic feet of space.

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✿ A RESIN and oil emulsion paint, especially designed for use over wall-paper, seems to provide all the advantages of flat oil finishes. It is mixed with half its volume of water and applied with a brush, drying in about an hour. It is washable after 20 to 30 days when the oil-resin film in the emulsion has oxidized.

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If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N. St., N. W., Washington, D. C., and ask for Gadget Bulletin 153.

British engineers are reported to be using waste paper to make expansion joints for the concrete runways on airfields.



### OUT OF PRINT

U. S. Publications at low prices:

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# First Glances at New Books

► **FOOD** is of primary interest to everyone these days. Methods of freezing, not only vegetables and fruit, but also meat, poultry, dairy products and fish are described in *THE FREEZING PRESERVATION OF FOODS*, by Donald K. Tressler and Clifford F. Evers (*Avi*, \$8, \$8.25 foreign). Of interest to commercial firms and to farmers and others who are fortunate enough to have access to lockers-plants, this book also contains a chapter written by Prof. Faith Fenton of the College of Home Economics of Cornell University on the cooking of frozen foods.

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► **NURSES** EVEN more than the rest of us need to know how to give first aid and to handle emergencies beyond the scope of the average first aider. Surprisingly, they get very little instruction along these lines, according to *EMERGENCY CARE*, by Marie A. Wooders and Donald A. Curtis (*F. A. Davis*, \$3.50). This book is written to fill that need and also to give nurses a clear picture of nursing duties in the Army, Navy and civilian defense.

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► **MAY 24** marks the 400th anniversary of the birth of Copernicus. Schools and groups who plan to join in this celebration will find the booklet, *NICHOLAS COPERNICUS, 1543-1943*, by Stephen P. Mizwa (*Kosciuszko Foundation*, 75c.), a source of information and inspiration.

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► **AIRPLANES** have often been called the greatest weapon of modern warfare. In *THE FIGHT FOR AIR POWER*, by William Bradford Huie (*L. B. Fischer*, \$2.50), the mechanical details of bombing planes are discussed such as armor, speeds, and performance. Unfortunately the book lacks both a table of contents and an index.

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► **TECHNICAL TRAINING** is urged not only for those entering the armed forces, but also for post-war use when specialists will also be in demand. A pre-induction training course on *RADIO*, by R. E. Williams and Charles A. Scarlott (*American Book Co.*, \$1.04) should prove helpful for those who wish knowledge in this field.

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► **WHEN** scientists, philosophers and religionists talk together they do not always speak the same language. Yet this collection of papers, *SCIENCE, PHILOSOPHY AND RELIGION: Third Symposium (Conference on Science, Philosophy and Religion)*, \$3 delivered last August, is an attempt to bring different modes of thinking and different criteria of value into the same realm of understanding.

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► **FOR INFORMATION** and amusement Benjamin Subercaseaux has written *CHILE, a Geographic Extravaganza* (*Macmillan*, \$3.00). The Chilean writer describes his country, and his countrymen and their characteristics, customs and temperaments in a vein intended to make them think and laugh. Persons interested in geography and people will enjoy it.

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## Just Off the Press

**AIR NAVIGATION FOR BEGINNERS**—Scott G. Lamb and Mrs. Harry Thomas Jordan—*N. W. Henley*, 103 p., illus., \$1.50. For boys and girls who hope to go into aviation, this book is written by a retired Naval officer.

**THE ANOPHELINE MOSQUITOES OF THE CARIBBEAN REGION**—W. H. W. Komp—*Govt. Print. Off.*, 195 p., illus., 35c. Fed. Security Agency, U. S. Public Health Bulletin No. 179.

**ARCHAEOLOGICAL SITES OF THE CUCHARA DRAINAGE SOUTHERN COLORADO**—E. B. Renaud and Janet Chatin—*Univ. of Denver*, 62 p., 4 plates, 60c., wholesale; 75c., retail. Archaeological Series, Fourth Paper.

**BIG LITTLE THINGS: In Conquering Pulmonary Tuberculosis**—Samuel H. Watson and W. R. Hewitt—*The Tucson Clinic*, 28 p., 10c., single copy; \$1, twelve copies; \$7.50, one hundred copies. Pamphlet.

**THE CAROTID CIRCULATION IN THE DOMESTIC CAT**—D. Dwight Davis and H. Elizabeth Story—*Field Museum of Natural History*, 47 p., illus., 50c. Zoological Series, Field Museum of Natural History, Volume 28, Number 1, March 25, 1943. Publication 527.

**DICTIONARY OF BIO-CHEMISTRY AND RELATED SUBJECTS**—William Marias Malisoff—*Philosophical Library*, 579 p., \$7.50. "Designed for readers of biochemical literature who might want the definition of terms used more than a decade ago as well as of terms just coined."

**DICTIONARY OF SCIENCE AND TECHNOLOGY** in English, French, German, Spanish—Maxim Newmark—*Philosophical Library*, 386 p., \$6. Containing 10,000 current terms in the English language most frequently used in the physical sciences and their applied fields, together with separate indices in French, German, and Spanish, conversion tables, and technical abbreviations.

**ELECTRICAL AND RADIO DICTIONARY: Including Symbols, Formulas, Diagrams, and Tables**—Carl H. Dunlap and Enno R. Hahn—*American Technical Society*, 110 p., \$1. Revised and enlarged ed.

**ELEMENTS OF FOOD BIOCHEMISTRY**—William H. Peterson, John T. Skinner and

Frank M. Strong—*Prentice-Hall*, 291 p., illus., \$3.

**THE FREEZING PRESERVATION OF FOODS**—Donald K. Tressler and Clifford F. Evers—*Avi Publishing Co.*, 789 p., illus., \$8, domestic; \$8.25, foreign.

**HEATING VENTILATING AIR CONDITIONING GUIDE 1943**—*American Society of Heating and Ventilating Engineers*—1268 p., illus., \$5. 21st edition.

**THE HOME MECHANIC**—Douglas Tuomey—*Macmillan*, 182 p., \$2.50.

**INTERNATIONAL AGREEMENTS ON CONSERVATION OF MARINE RESOURCES: With Special Reference to the North Pacific**—Jozo Tomasevich—*Food Research Institute*, 297 p., \$3.

**A MANUAL FOR EXPLOSIVES LABORATORIES: Volume II. Explosive Compounds and Allied Substances, a Descriptive List**—G. D. Clift and B. T. Fedoroff—*Lefax Society*—Various paging, \$2.25.

**MARINE PLANKTON DIATOMS OF THE WEST COAST OF NORTH AMERICA**—Easter E. Cupp—*Univ. of California Press*, 237 p., illus., \$2.50. Bulletin of the Scripps Institution of Oceanography of the University of California, LaJolla, California, Volume 5, No. 1.

**POTASH IN NORTH AMERICA**—J. W. Turrentine—*Reinhold*, 186 p., illus., \$3.50. American Chemical Society, Monograph Series.

**PSYCHOLOGY YOU CAN USE**—William H. Roberts—*Harcourt, Brace*, 246 p., \$2. A readable book intended to give the general reader useful information about himself.

**QUESTIONS AND ANSWERS FOR MARINE ENGINEERS: Book VI**—Compiled by H. C. Dinger—*Simmons-Boardman*—136 p., \$1. Book VI:—Water Treatment Corrosion and Safety Rules.

**RAPID REVIEW OF MODERN EUROPEAN HISTORY**—Sydney H. Zebel—*Emerson Books*, 58 p., 2 maps 24c (5 or more copies, 16c.). Pamphlet. One of Penny Press Series.

**A SURVEY OF PHYSICS: For College Students**—Frederick A. Saunders—*Holt*, 724 p., illus., \$4. Textbook. 3rd ed.